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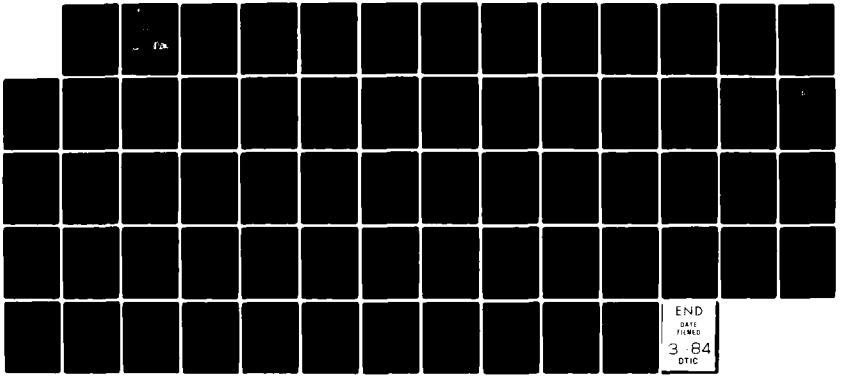

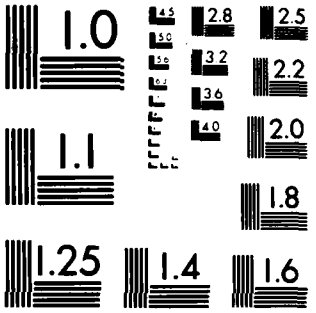

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MOBILIZATION AND DEFENSE MANAGEMENT TECHNICAL REPORTS SERIES

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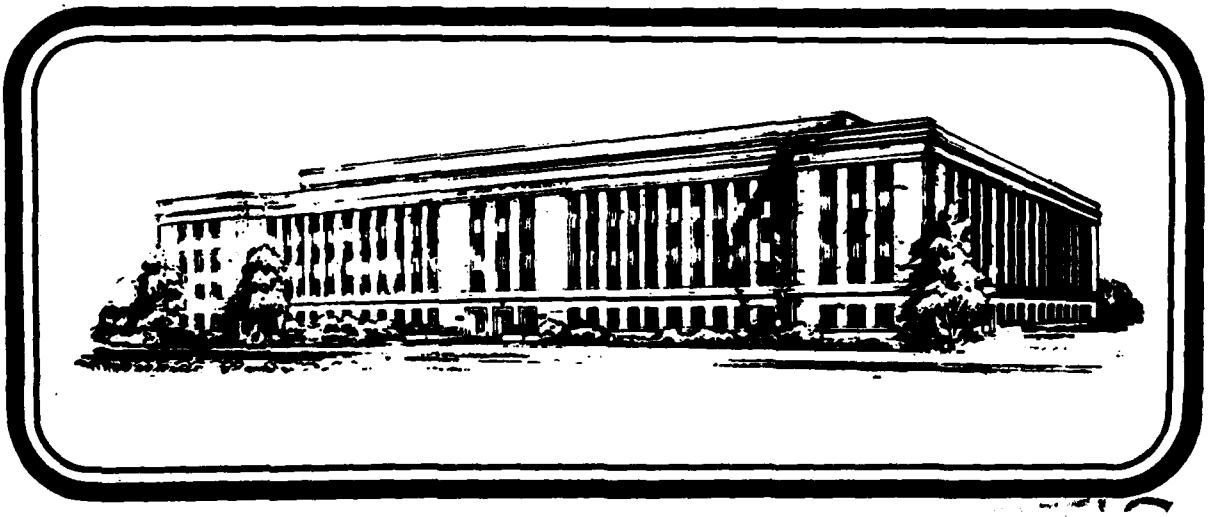
ACQUISITION OF ADP BY THE ARMY DURING MOBILIZATION



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This study focuses on the Automated Data Processing (ADP) needs of the Army in the 1980's and the resources available to satisfy these needs. A new system called the Vertical Installation Automation Baseline (VIABLE) forms an important ADP resource that must be carefully examined to determine the Army's ADP shortfalls in a mobilization scenario. Analysis of VIABLE, as well as existing and important, new mobilization systems (such as the Continental Army Management Information System-CAMUS) attempt to assess the actual Army ADP requirements that must be satisfied. From this baseline, Army ADP Procurement is discussed,

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THE INDUSTRIAL COLLEGE OF
THE ARMED FORCES

INDEPENDENT RESEARCH TOPIC

ACQUISITION OF ADP BY THE ARMY DURING MOBILIZATION

by

Gordon W. Arbogast, 110-32-8695 Lt Col, USA

A RESEARCH REPORT SUBMITTED TO THE FACULTY IN

FULFILLMENT OF THE RESEARCH

REQUIREMENT

Research Supervisor: Lt Col Hamilton, USAF

THE INDUSTRIAL COLLEGE OF THE ARMED FORCES

March 1983

DISCLAIMER-ABSTAINER

This research report represents the views of the author and does not necessarily reflect the official opinion of the Industrial College of the Armed Forces, the National Defense University, or the Department of Defense.

THE INDUSTRIAL COLLEGE OF THE ARMED FORCES

INDEPENDENT RESEARCH TOPIC ABSTRACT

TITLE: Acquisition of ADP by the Army during Mobilization

AUTHOR: Lt Col Gordon W. Arbogast

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Lastly, a number of conclusions and recommendations on ADP preparedness for mobilization are included.

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EXECUTIVE SUMMARY

The main purpose of this independent research study is to analyze the Automated Data Processing (ADP) needs of the Army in a mobilization scenario. This is undertaken with a view of evaluating the ability of Army resources to satisfy the Army's mobilization requirements. Recent mobilization exercises have drawn attention to major automation deficiencies to include : (1) the worldwide problem of saturated Base Operating System computers; (2) unacceptable computer system failures; (3) Reserve Component and National Guard systems being incompatible with active Army systems; and (4) inability of Army standard ADP systems to support mobilization.

CHAPTER I: INTRODUCTION

Although Army automation spans a wide spectrum, this study focuses on the problem of Base Operating Systems (BASOPS) computers and the systems that are run on these computers. These are the Army ADP resources that are of primary import to Army mobilization. At Army installations in the Continental United States, Hawaii, Alaska, and Panama, a new computer system called the Vertical Installation Automation Baseline (VIABLE) is now being fielded to replace the old BASOPS hardware. This important resource is having a major impact on the ADP posture of the Army. The major hypothesis addressed in the study was that the VIABLE system is large and flexible enough to fully support the Army's mobilization and wartime BASOPS requirements.

CHAPTER II: THE VIABLE RESOURCE

The VIABLE resource is analyzed in some detail to understand why it was needed and how it was designed, developed and is now being fielded. Emphasis is on the system approach that was taken by the Army to satisfy not only the need for new computers, but also the Army's needs for training, interactivity, executive software, documentation etc. Also discussed is the unique regional design of the VIABLE network.

CHAPTER III: ARMY SYSTEMS IN MOBILIZATION

The purpose of this chapter is to review which Army systems are most important to mobilization. The Standard Army Multicommand Management Systems (STAMMIS) and major command unique systems are first examined. In a mobilization scenario these are the systems which must bear a heavy burden to sustain personnel, logistics and financial operations in the Army. Next, the systems of the Army Reserve and the Army National Guard are discussed. It is observed that the Reserves and National Guard Data Processing Units have not been provided with any modern fixed station BASOPS ADP equipment. They are scheduled to receive some transportable ADP equipment, but for mobilization they will be tied to active Army installations for primary support. Concerning Reserve systems, they are dependent on the standard Army systems, but have a number of important special purpose unique systems that are non-standard in the Army. During recent exercises, major ADP problems that surfaced included: (1) overloaded ADP systems; (2) overloaded communications systems; and (3) the

Reserve and National Guard non-STAMMIS computer systems. Although a mature VIABLE network will address the first two problems, the Army has not been able to develop a major system that will efficiently service the Reserves, National Guard, and Active Forces in a mobilization scenario. This deficiency has been recognized and the solution is now being designed. Named the Continental Army Management Information System (CAMIS), this system is a major Forces Command (FORSCOM) initiative to provide automation in mobilization to the Reserve Components. CAMIS is next discussed to include the "Demonstration CAMIS" which was employed in the last PROUD SPIRIT/MOBEX exercise. It is observed that until CAMIS comes on line in 1985, automation in support of the Reserve Components will remain fragmented.

CHAPTER IV: VIABLE IN MOBILIZATION

In this chapter, the impact of mobilization on Army ADP is explored, with emphasis on the VIABLE resource. First, Army mobilization requirements that were integrated into the VIABLE Request for Proposal are reviewed. These include support of: (1) inactive/semiactive mobilization stations with standalone terminals; (2) increase of storage capacity of two to three times; (3) increase in batch processing at each DPI; (4) increase in interactive workload to 700%; (5) around-the-clock operations, seven days a week and ; (6) a surge to support mobilization requirements within six days. Next, the VIABLE capability to support these mobilization requirements is addressed. It is determined that a very robust and flexible capacity has been built in-

to VIABLE's regional design to accomodate the aforementioned requirements. The VIABLE contractor (Electronic Data Systems Corporation) will be able to meet the Army's requirements within a twenty-four hour period. In addition, a complete continuity of operations plan has been developed in the event certain portions of the VIABLE network became degraded during mobilization. The types of degradation in the network are discussed in some detail. Of much concern is the fact that many new requirements are now being put on the VIABLE system. Therefore, the flexibility of the VIABLE system in accomodating new requirements is of great importance. This chapter concludes with the observation that the VIABLE system through built-in upgrades, accelerators, and up-ward compatible mainframes has tremendous flexibility in being able to rapidly satisfy large, sudden increases in processing and storage.

CHAPTER V: ADP PROCUREMENT IN MOBILIZATION

This chapter is intended to view Army mobilization in the context of ways to expedite ADP procurement in such a scenario. It is observed that the existing Defense Acquisition Regulations (DAR) sets down highly structured procedures for procurement in peacetime. Lacking in the DAR and associated Army implementing regulations are meaningful ways to expedite the procurement cycle in mobilization. ADP procurement in industry and other non-Federal organizations are next reviewed to determine if there are any policies in effect that could be employed to shorten acquisition time. It is found that there are indeed a number of steps

that could be taken to acquire additional ADP more rapidly in a mobilization scenario. However, these changes are well above the authority of the U.S. Army. In fact it will take Congress to recognize the merits of a 1981 GAO study that recommended that some of these changes be adopted. The General Services Administration Multiple Award Schedule Contracts (MASC-70) do provide one vehicle to expedite ADP procurement, but existing dollar thresholds are such that these contracts are only useful for adding components to existing systems or in replacing components. Probably the best technique to ensure an expedited procurement capability is to include special clauses in Army ADP contracts. This was done in the VIABLE procurement with options for increased quantities, new technology, and mobilization built into the contract up-front.

CHAPTER VI: CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the Army is making outstanding progress in resolving major problems that have inhibited mobilization efforts in the past. VIABLE is the most significant initiative that has been undertaken by the Army in this regard. It is concluded that VIABLE is both large and flexible enough to fully support the Army's mobilization and wartime BASOPS requirements. Taken together in a systems approach with other important Army initiatives such as CAMIS, Army mobilization capability should be significantly enhanced by 1985.

CHAPTER I

INTRODUCTION

Historically, this nation has maintained a small regular force with reliance on conscripts and militia to provide manpower in the event of war. With the advent of the 20th century increased readiness of reserve units began to assume a higher priority in the government. With the Dick Act of 1903, the government began to take a larger role in the outfitting of the reserves. In World War I, twelve National Guard divisions and ten Army reserve divisions were mobilized. It took approximately twelve months to prepare these forces for combat. In World War II, nineteen Army National Guard divisions and thirty-three U.S. Army Reserve divisions required mobilization. Fortunately, partial mobilization occurred more than a year before commencement of hostilities. With the advent of Pearl Harbor these divisions were well along to being mobilized. In 1950 there were eight National Guard divisions called up- two deployed to Europe and two to Korea. At that time it took fourteen months to man, equip, and train these units prior to deployment. In the Berlin crisis of 1961, the President relied heavily on trained reserves to support immediate foreign policy objectives. One hundred-fifty reserve units were mobilized, including two Army National Guard Divisions and an Armored Cavalry Regiment. The main delays were due to administrative processing and supply procedures. The same reasons for delay were also evident in the Pueblo crisis of 1968. Although the units were well-manned, trained and equipped, the assimilation

to active Army systems and procedures delayed deployment. ADP was not a major factor in any of these mobilizations. (14:5-6)

In recent years the Army strategists and planners have placed increased reliance on the use of the Reserve Components (RC). The genesis of this strategy was the Total Force Concept in the early 1970's; since that time mission-ready Selected Reserve forces have been designated as key elements of the U.S. Army. This dependence is clearly in evidence in unified command contingency plans which require the early deployment of some RC Army units well before some active Army units. The RC provides more than one-third of the total Army combat power and two-thirds of its combat support and combat support structure. Reserve units and members of the Individual Ready Reserve and Stand-By reservists will also man the training and sustaining bases when active units relinquish those tasks and deploy to the war theater.

Increasing attention has also been given to the Army's ability to mobilize and deploy both active duty and RC units, as well as individuals. Mobilization exercises in 1976, 1978, 1980, and 1982 all tested the command and control structure and procedures in place for managing mobilization and deployment. A major issue that has recurred in the After-Action reports of all of these exercises is the inadequacy of automated systems to support a sizeable mobilization and deployment. The Proud Spirit/MOBEX 80 After-Action Report stated that "Current ADP Systems cannot support a major mobilization and deployment ..... During MOBEX 80, computer system failures resulted in

the lack of timely and required data. The volume of information requirements saturated the ADP systems particularly at several mobilization stations. There was no ADP common system supporting installations, ARMRs, CONUSAs, and Headquarters FORSCOM cross-leveling activities. There was no timely updating of MILPERCEN personnel files." The report goes on to relate that similar automation deficiencies were revealed during Exercise NIFTY NUGGET/MOBEX 78. (2:I-3-I-5)

Several studies have been prepared which identify automation problems that are not unique to mobilization. Specifically, current automated systems supporting RC management are not compatible with active Army systems and do not allow easy access of RC units and personnel into active systems upon mobilization. The lack of master planning for RC units and the continued development of separate systems by the U.S. Army Reserve (USAR) and Army National Guard (ARNG) will increase the cost and complexity of integrating active and reserve systems. (2:I-5-I-6)

In this setting a serious constraint that could have a major impact on the Army's capability to mobilize is the lack of fixed ADP resources at the Army bases in the CONUS, as well as in Hawaii, Alaska, Panama and in Europe. Specifically, the Army needs to be able to run its Standard Army Multicommand Management Systems and other major command and Installation Systems during mobilization in order to be able to accomplish its mission and to continue to function properly. The Standard Army Multicommand Management Systems and other Management Information Systems applications software is currently run on

Army installation Base Operating System hardware (BASOPS), which is being upgraded by new Verticle Installation Automation Baseline (VIABLE) hardware and executive software. VIABLE is the major system which is transforming the ADP landscape of the Army. It will clearly have a tremendous impact and is scheduled to be fully on-line by 1985 in the States. Planning is currently going on to extend the VIABLE system to Europe and to the Pacific. Given the schedule in the contract, it is unclear as to whether or not this new resource will be able to handle all the Army's mobilization and wartime BASOPS requirements, which include additional Major Command's Management Infomation Systems that are not programmed for VIABLE and systems for management and mobilization of the Reserves such as the new Continental Army Management Information System (CAMIS).

It is universally recognized that the Army will no longer have the luxury of many months to mobilize using the manual systems of the past. In addressing this situation, the following tentative hypothesis was developed for this study:

"THE VIABLE SYSTEM WILL BE LARGE AND FLEXIBLE ENOUGH TO FULLY SUPPORT ALL OF THE ARMY'S MOBILIZATION AND WARTIME BASOPS REQUIREMENTS."

Of primary import, this study focused on: (1) the exact capability of VIABLE to support the Army's wartime requirements; and (2) given an ADP shortfall (null hypothesis) during a mobilization scenario, what is the best method to acquire that shortfall. When mobilization is declared, large increases in processing capability and storage requirements at many of the Army's

fixed base Data Processing Installations will occur almost instantly. Army ADP fixed resources that will be fully capable of absorbing this sudden increase in mobilization workload must also be quickly made available or else Army mobilization will grind to a rapid halt. A failure of Army mobilization in a crisis is unacceptable to this nation's national security. The purpose then of this study focuses on the capability of VIABLE to handle these large requirements.

It is important to recognize the limits of this study. Army automation spans a spectrum which includes Battlefield Automated Systems (BAS), Tactical Management Information Systems (TACMIS), World Wide Military Command and Control System (WWMCCS), as well as the installation BASOPS fixed systems which VIABLE is replacing. It is the latter part of the spectrum that forms the support base on which mobilization requirements will fall. This study is targeted on this part of the spectrum and does not attempt to address the other three portions which are impacted less by mobilization.

CHAPTER II

THE VIABLE RESOURCE

A. BACKGROUND

The U.S. Army awarded in April 1982 a major contract to the Electronic Data Systems Corporation (EDS) to revamp the Army's automatic data processing fixed facilities. This initiative, called Project VIABLE (Vertical Installation Automation Baseline), is an Army-wide effort to modernize its current Base Operations ADP hardware and software. Although the contract was only for $16.6 million the first year, the renewable options, phased replacements, and upgrades of facilities over the next ten years bring the projected contract cost to well over $600 million. If VIABLE is not the biggest Automatic Data Processing (ADP) procurement ever in the procurement industry, it certainly is among the largest. More importantly, it represents a successful initiative by the Army to adopt a total "systems approach" to solving its growing ADP challenge. (13:20)

Currently, the Army operates many Base Operating System (BASOPS) fixed computer facilities around the world. Until recently the large majority of these sites were using 1960's technology- essentially IBM 360 mainframes. ADP production and software development was being carried on in virtually a total batch mode using antiquated operating systems. Due to burgeoning requirements, BASOPS sites quickly became saturated, some as early as the week after the installation of the original BASOPS equipment. Besides the acute saturation problem, the old technology was causing high personnel requirements,

increasing support costs for repair parts and maintenance, and increased software costs. As an example, International Business Machines (IBM) ceased its executive software support in October 1977. As a result, The U.S. Army Computer Systems Command had to dedicate an increasingly large amount of resources to maintain its large executive software investment. The saturation problem also had a decided readiness impact, as key logistics, personnel and financial applications programs could not be run at many installations. Also significant was the loss of a mobilization surge capacity at the installations. In an effort to improve matters, local solutions began to proliferate at the installations. This fragmented approach to solving the problem provided some temporary relief, but was costly and relied much too heavily on available talent and local command support.

In 1977 the Army formally initiated Project VIABLE- the Army's answer to the BASOPS problem. At that time it was decided that VIABLE would be extended to some 47 major Army installations in the Continental United States (CONUS), Hawaii, Alaska, and Panama. It is at these installations that the Army runs a variety of Standard Multicommand Management Systems (STAMMIS)- systems such as the Standard Army Intermediate Level Supply System (SAILS-ABX) and the Standard Installation Division Personnel System (SIDPERS). These installations also process a variety of Major Command (MACOM) and local installation unique systems. It took a full year and a half to develop a master plan and to constitute a Project Office. However, by 1978 the necessary preparations and organization had been completed and VIABLE really began to take form.

B. A SYSTEMS APPROACH

As previously mentioned, the Army had adopted a total systems approach to the VIABLE acquisition. The Army not only needed modern computers for its BASOPS sites, but it also needed training, terminal interactivity, extensive documentation, executive software, utilities, transition of application software etc. In short, it needed industry support in solving all of its ADP needs. In the area of training, the Army needed thousands of personnel trained including its ADP management, systems programmers, applications programmers, and computer operators. It also needed training for terminal operators, as well as training in the new software tool known as data base management systems. To protect its large investment in application software, the Army required the winning vendor to transition the current STAMMIS. This involves making those minimal changes required to allow the application software to run on the new VIABLE resource (hardware and executive software).

C. THE EDS CONCEPT

EDS proposed a very innovative solution to satisfy all of the Army's VIABLE requirements for the next decade. Their solution had these important features: (a) a fully integrated telecommunications network; (b) latest off-the-shelf technology; and (c) hardware and software upward compatibility with the current BASOPS. The most striking feature of this solution is the nationwide integrated network of five Regional Data Centers (see Figure 1). EDS has employed this network approach in its commercial operation since 1968 and it has pro-

ven to be operationally sound for a large number of commercial and government users. In the case of VIABLE, these EDS operated Regional Data Centers (RDC's) are fully integrated with the Army operated Distributed Processing Centers (DPC's, formerly called DPI's). The RDCs will be located around the United States in convenient locations- Washington D.C.; Fort McPherson, Georgia; Fort Hood, Texas; Fort Ord, California; and Fort Knox, Kentucky. Tied together in a "ring" network by multiple high speed data lines, each RDC is in turn connected to two other RDCs with similar high speed lines. At the installations, modern terminals and printers will be located in the important functional areas e.g. the Director of Industrial operations (DIO) will have a number of terminals in his area to enter logistical data entry transactions and obtain file inquiries. These terminals will be homed through on-post communications to a remote concentrator processor. At this point, all terminal traffic is concentrated and sent on to the RDC for processing. At the installation, a distributed processing system (IBM 4331) will be installed for remote job entry of jobs to the RDC. This IBM 4331 will also be capable of processing small jobs independent of the large mainframes at the RDCs. Army requirements dictate that roughly 75% of the ADP traffic during the day will be derived from the interactive terminals while only 25% will be batch. During the second eight hour shift at night, batch processing will increase to 100%. Initially, most classified periods processing will occur during the evening shift, when most terminals are idle.

D. THE REGIONAL DATA CENTER

The Regional Data Center (RDC) is obviously the hub of network (Figure 2). Two Amdahl 470V7 mainframes will provide the large scale processing capability at the RDC. These Amdahl machines are capable of processing several millions of instructions per seconds (MIPS), which is more than adequate processing power to handle the workload of ten to twelve installations. By 1992 there will be four Amdahl 470/V7 or equivalent mainframes in the RDC. Concerning equivalent CPU's, under a new technology clause in the contract, the Army can opt to replace older equipment with state-of-the-art hardware and executive software if the new equipment meets the Army's requirements. At the Regional Data Centers are located a variety of equipment to include disk drives, tape drives, card readers, card punches, and printers from Storage Technology Corporation and NCR Comten communications processors. Also of major importance is the executive software located at the RDC. The combination of the large mainframes and full complement of executive software forms the basis of a very powerful and flexible ADP resource at the RDC. This resource will be controlled by a Network Control Center on site at each RDC. A separate Army support team will be co-located at the RDC to provide necessary operational direction for the RDC and the network.

E. THE ARMY INSTALLATION

At the Army installation, the Data Processing Center (DPC)

will be equipped with a complimentary NCR Comten remote concentrator processor (RCP), IBM 4331 computer, and a variety of peripheral equipment to include disk drives, tape drives, and unit record equipment. At the user locations, Raytheon terminals (includes printers) will be housed through cluster controllers, modems and on-base circuits to the NCR Comten RCP at the DPC. The IBM 4331 computer system will initiate and control the remote entry of jobs from the DPC to the RDC, while also controlling system output at the DPC and facilitating local program development and production requirements. The IBM 4331 system is more powerful than an IBM 360/50 and can also be used independently to run limited software jobs locally. The DPC also features a complete complement of executive software, to include the current release of IBM's DOS/VSE operating system with appropriate utilities and a COBOL processor. Other communications is located in the NCR Comten RCP to support the required full networking features.

F. EXTENSION

The VIABLE network is now being installed. Actual installation began in the fall of 1982 and is scheduled to be completed within three years. The six initial sites have been installed with the first two sites being the United States Army Computer Systems Command's Headquarters Computer Complex in Fairfax, Virginia and the command's large, logistics systems distributed, development center at Fort Lee, Virginia. Two RDC's are required to support the first six sites. By late calendar year 1983, three RDC's and 18 DPC's will have been implemented and will be on the network. Each terminal

user at that time will be able to access the full capability of the network. By the fall of 1985, all 47 installations will have been transitioned from the old BASOPS environment to VIABLE. The mature network will exist and form the basis for subsequent enhancements and upgrades.

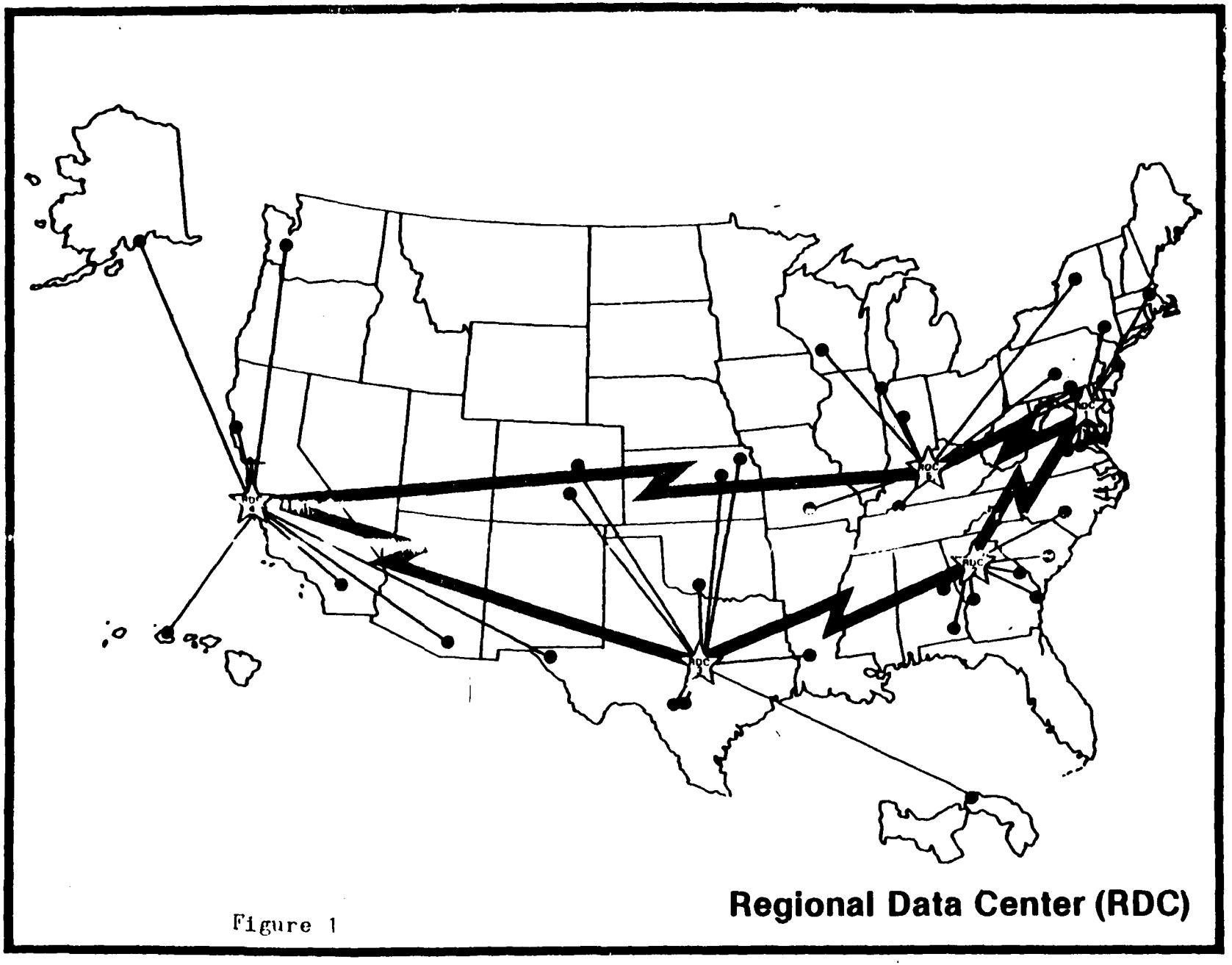

Figure 1

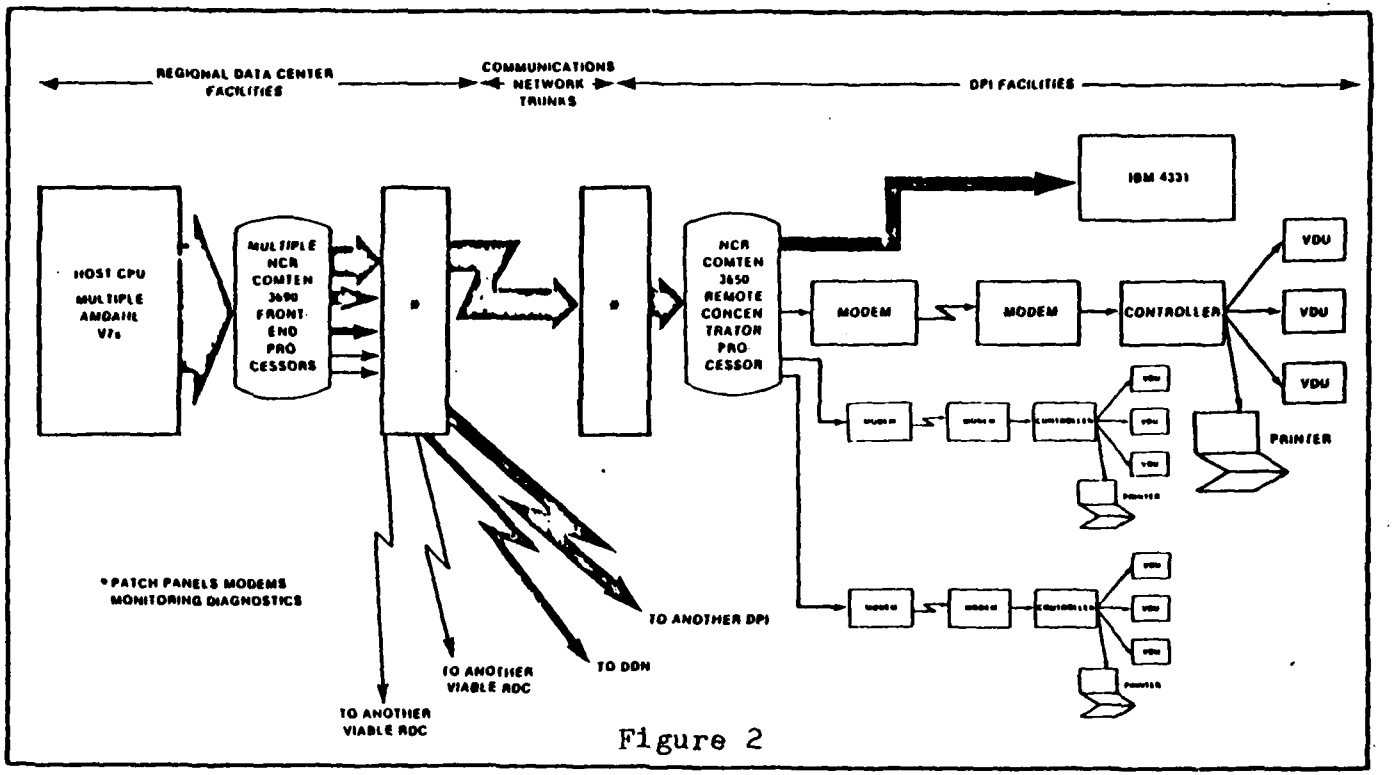
REGIONAL DATA CENTER FACILITIES
COMMUNICATIONS NETWORK TRUNKS
DPI FACILITIES
HOST CPU
MULTIPLE AMDAHL VMs
MULTIPLE NCR COMTEN 3690 FRONT-END PROCESSORS
NCR COMTEN 3650 REMOTE CONCENTRATOR PROCESSOR
IBM 4331
MODEM
MODEM
CONTROLLER
VDU
VDU
VDU
PRINTER
*PATCH PANELS MODEMS MONITORING DIAGNOSTICS
TO ANOTHER DPI
TO DDN
TO ANOTHER VIABLE RDC
TO ANOTHER VIABLE RDC

Figure 2

CHAPTER III

ARMY MOBILIZATION SYSTEMS

A. MOBILIZATION

Mobilization provides the transition between peace and war. This intensive time period must be carefully planned so as to ensure that the nation can obtain an enhanced readiness state quickly and in the most efficient manner. Army mobilization systems enhance the national capacity to wage war, if that condition becomes necessary. As the bridge between peace and war, mobilization is the critical time when: (1) active forces are brought up to full combat strength and readiness; this requires additional personnel, equipment, supplies and training; (2) the reserve units must make the transition to an active force; they must be provided with equipment, supplies, and training, and they must be billeted at their mobilization station; (3) a draft is put into effect; recruits must be processed, trained, and equipped; (4) National Guard units must be activated and will need additional personnel, equipment, supplies, and training to achieve combat readiness; (5) the Individual Ready Reserve must also be activated, and must be equipped, billeted, supplied, trained, and assigned to active units; (6) selected parts of private industry come under Federal control; and (7) Federal control may also be placed on such assets as land, oil reserves, and stockpiles of certain needed commodities inside or outside of private industry. (4:Section 2)

In speaking of the Polish military in 1939, Liddel-Hart

stated "their (the Polish) incapacity to strike earlier arose from their mobilization system, which was inherently out of date." (10:32) Although computers were not available to the Poles, the failure of a large nation to actively resist German aggression can be ascribed in large measure to poor mobilization. The lessons of history must be well learned. The effectiveness of a reserve system is directly proportional to the speed in which men, machines, and material can be mobilized for combat. The total force policy relies heavily on the Ready Reserve- Active Reserve and the Army National Guard. Automated Management Information Systems can be the key to that speed.

The raison d'etre of all Army mobilization Management Information Systems (MIS) is to make a significant improvement in the ability of the country to mobilize rapidly and efficiently. The purpose of this chapter is to review which Army systems are most important to mobilization.

B. STAMMIS AND MACOM UNIQUE SYSTEMS

It is apparent that the same systems that sustain peacetime operations will bear much of the brunt during a mobilization scenario. Several of the Standard Army Multicommand Management Systems (STAMMIS) have already been mentioned e.g. SAILS-ABX and SIDPERS. SAILS-ABX represents the largest applications software that is run on VIABLE and is the backbone of the Army's supply system. Whether ordering tank engines or small teletypewriter repair parts, this system must be functioning properly to ensure a smooth and timely flow of material. SIDPERS is another large system that is the personnel counterpart to

SAILS-ABX. The morning reports have long ago vanished and the Army of the 1980's relies almost exclusively on its SIDPERS system to keep track of and relocate personnel assets around the world. In a mobilization scenario the movement of increased numbers of personnel would fall heavily on the SIDPERS system, especially its specially designed wartime modules. There are a number of other supply and personnel systems, but SAILS-ABX and SIDPERS are the most important. In the finance and engineer areas, there are other comparable STAMMIS such as the Standard Army Financial System (STANFINS) and the Installation Facility System (IFS). In all there are some forty STAMMIS that are run on the VIABLE system. These comprise some three million lines of code.

Besides the STAMMIS, there are even more lines of code that are invested in Army MACOM and installation unique applications software. It has been recognized that the standard Army systems are not totally responsive to all commanders throughout all levels of the Army. Therefore, the major commands (e.g. the Training and Doctrine Command- TRADOC) and installations have developed unique systems that will effectively satisfy the automated requirements at the different levels of the Army structure. Many of these systems will also be run on the new VIABLE resource, although now some of these systems are being run on standalone hardware. Department of the Army policy is to phase out the standalones and many currently leased systems as the VIABLE resource comes fully on-line in the mid-1980's.

C. ARMY NATIONAL GUARD AND ARMY RESERVE SYSTEMS

The National Guard of the several states, the District of Columbia, and the Commonwealths of Puerto Rico and the Virgin Islands have both a Federal and a State mission. The State mission is to provide protection of life and property and to preserve peace and public safety. The Federal mission is to provide combat, combat support, and other units that are ready, trained, and equipped for mobilization. In peacetime, National Guard units are under the Governors of the States. When Army National Guard Units in a state are alerted for mobilization, a State Area Command (STARC) is federalized to assist the Continental Armies (CONUSA) in mobilizing these units. The Office of the Chief, U.S. Army Reserve (OCAR), is an Army Staff Agency responsible for coordinating activities pertaining to the development and maintenance of the Army Reserves. The peacetime USAR chain of command for CONUS troop units is through U.S. Army Forces Command (FORSCOM), the Continental Armies (CONUSA) and through the Major United States Army Reserve Commands (MUSARC). With mobilization, the MUSARCs assist the CONUSAs in mobilizing units under their command. (2:7)

U.S. Army Reserve and National Guard Data Processing Units (DPUs) have not been equipped with BASOPS ADP equipment in peacetime. Furthermore, they have not been scheduled to receive any of the new VIABLE resource. The concept has been to provide them with transportable Tactical Management Information System (TACMIS) equipment that can be employed in the field to run limited STAMMIS and unique software cycles. However, the Reserve and National

Guard Data Processing Units are not presently equipped with any of the modern transportable ADP equipment or adequate numbers of trained personnel. They do have some antiquated (1950's vintage) Burrough's and Univac 1005 Unit Record Equipment, but this equipment is grossly inadequate to the task at hand. The eight ARNG divisions and fifteen of the eighteen separate ARNG brigades and three USAR brigades have UNIVAC 1005 equipment. Only two of the five Reserve Component Data Processing Units (DPUs) have ADPE. A program does exist to provide TACMIS equipment (DAS-3Bs) to the Army Reserve and National Guard in the fall of 1983. Currently, a production decision is being made by the Department of the Army that will fully commit $23 million to the buy of the DAS-3B's. Each Division will receive two DAS-3Bs- one to run their personnel systems and the other to run logistical systems. (1)

Assuming that the Reserves and National Guard starts receiving this equipment, it should be noted that their processing and storage capacity will still be limited. Although the DAS-3B is a quantum jump in capability when compared to the UNIVAC 1005, it is important to note that the CPU in a DAS-3B is only a Honeywell Level 6 minicomputer. This equipment has as its primary function the processing of wartime systems in a theater of operation. However, it is not intended to use the DAS-3's to run the large systems that would support mobilization. Therefore, the Guard and Reserves are tied to the active Army for mobilization ADP support. This workload has been included in the VIABLE baseline. The concept is to satellite some 14

inactive/semiactive support mobilization stations on BASOPS DPI's e.g. Camps Edwards, Pickett, Buchanan will be served by VIABLE equipped installations such as Fort Devens, Lee and McPherson. The interface will be via Harris ADPE which will service the VIABLE DPC with off-line tapes. The Harris equipment will be at the mobilization stations and will be homed via communications links to the BASOPS DPI's. FORSCOM is now procuring the Harris ADPE to include the terminals (32) that will be homed off the ADPE at each mobilization station.(3)

Current systems support is predicated on official U.S. Army doctrine established in AR 135-300 which outlines the procedures to be taken for and during mobilization. (18) Administrative and supply procedures are responsible for a great deal of the processing and reporting time in the 90 to 180 day preparation for deployment. People must be assessed against the active roles, provisions must be taken for cross-leveling of personnel resources and unit strength must be maintained. The U.S. Army Military Personnel Center (USAMILPERCEN) controls these actions in concert with the Military Personnel Office located at each mobilization installation through the SIDPERS STAMMIS. SIDPERS-RC and SIDPERS-WARTIME should considerably enhance personnel accession. As previously mentioned, the logistics function is fully automated with SAILS-ABX serving as the major system at the installations. In the active components, units obtain support from their Direct Support or General Support activity when requesting replenishment through the intermediate and wholesale levels. The retail level uses an automated system known as DLOGS for divisional units and DSU/GSU for non-divisional units. SAILS-ABX

interfaces with the wholesale system. In the reserve components the logistics system is basically the same and will be integrated into the active system in wartime. Financial management support consists of financial resources distribution control and pay. Military pay is managed by the U.S. Army Financial and Accounting Center (USAFAC) using the Joint Uniform Military Pay System (JUMPS). Both active and reserve components use the compatible JUMPS system. JUMPS-RC pays USAR and ARNG drill pay. Pay processing for annual training and active duty for training are decentralized to active Army Installation Finance and Accounting Offices of the States. On mobilization individual reservists pay accounts are automatically established on the JUMPS Active Army Master Pay File. (14:8-10)

During recent exercises, numerous problems surfaced that related to the use of ADP in mobilization. These included:

(1) Overloaded ADP systems- NIFTY NUGGET and other recent exercises have revealed that inadequate ADP capability exists to support full mobilization. This is primarily due to the fact that active installations do not have adequate ADP facilities to support their peacetime mission and have been saturated. With the advent of VIABLE, this situation should be completely redressed by 1985. There are fourteen inactive and state operated installations that will be fully activated upon full mobilization. Although none of these installations have an ADP capability at this time, FORSCOM actions are currently underway to provide ADP support via ADP terminals linked with ADP facilities at the active installations. This includes a magnetic tape interface into the

VIABLE system. In short, the problem of overloaded ADP systems appears to be well in hand and should be resolved with the VIABLE initiatives.

(2) Overloaded Communications Systems- None of the fourteen State operated and inactive mobilization stations programmed for large scale troop stationing have Automated Digital Network (AUTODIN) communications equipment. (14:13) Only voice and teletype communications are available at those locations. In addition, five of the stations have no assigned communications-electronic personnel to activate existing voice and teletype communications facilities. This has a significant adverse impact on automation support. In mobilization a digital transmission capability is essential to pass personnel data for SIDPERS, supply data for SAILS and pay data for JUMPS. Limited or lack of AUTODIN facilities creates information bottlenecks. (14:13) The previously discussed ADP terminals with the magnetic tape interface into VIABLE will redress part of this problem.

(3) Non-standard Computer Systems- The personnel systems of the USAR and ARNG are not compatible with each other nor with the peacetime systems of the active Army. Action is being taken to develop SIDPERS-USAR and SIDPERS-ARNG with compatible core data bases. SIDPERS-WARTIME will reduce the size of the data base to minimum essential elements. Another system, the Mobilization Personnel System (MOBPERS) will enhance the accession of records and will furnish prepositioned personnel and organizational data to the mobilization stations for Reserve Components Personnel and Administration Center (RCPAC) on a monthly basis.

In a mobilization scenario much of this data may not be accurate or timely because of the personnel cross-leveling occurring within the alert phase. (14:13-19)

Despite the effectiveness of the systems mentioned, the Army has not been able to design and develop a major system that would be responsive and result in an efficient and rapid mobilization. Nonetheless, there is some recent progress that is attempting to address this problem. The new Continental Army Management Information System (CAMIS) is now on the drawing board and when implemented, will have a major impact in bringing the Reserves and Active Duty forces together, especially in a mobilization scenario.

D. CONTINENTAL ARMY MANAGEMENT INFORMATION SYSTEM (CAMIS)

CAMIS is a major FORSCOM project to provide automation to the Reserve Component management structure. Today there is clearly lacking an automated data system which properly supports the specifics of current mobilization policies and procedures. Although there are a number of personnel, logistics and training systems available throughout the Army, they are excessive in numbers, unwieldy and generally unresponsive to managers responsible for planning and executing the mobilization mission. A vital automated data system is necessary to tie together all the elements involved in Army mobilization. CAMIS is designed to be the principle automated data system that will provide support to the Reserve Component mobilization planning and execution.

On 25 October 1979 the Mission Element Needs Statement (MENS) for CAMIS was approved at Headquarters, Department of the Army by

the Chief, Army Reserve. This MEMS identified a variety of major management information shortfalls to include the inability of decision makers at every echelon to make timely decisions and to appraise the critical requirements for reallocation and redistribution of resources. Included in the MEMS are the requirements of Headquarters FORSCOM, the Continental U.S. Armies (CONUSAS), Army Readiness And Mobilization Regions (ARMRs), Readiness Groups (RCs), Major U.S. Army Reserve Commands (MUSARCs), Mobilization Stations, Army National Guard State Area Commands (STARCs) and USAR Training Centers and units. The goal was to put commanders and staffs in the information flow and provide accurate and timely information in useable formats to assist in peacetime management, and to support the FORSCOM Mobilization and Deployment Planning System (FORMDEPS) in mobilization planning and execution.

In 1982 a study contract provided the functional requirements analysis, integrated test data from the three CONUSAs, and produced a number of conceptual solutions. Definition and design is projected for completion by July 1983 with system development to be completed in June 1984. Deployment is projected to begin in February 1985. Recognizing that the Army needed to begin operating with CAMIS before 1985, demonstration/validation CAMIS prototypes have been developed. Using dedicated CAMIS hardware (WANG), selected users in the CONUSAs and MUSARCs were provided with the automated capability to perform certain functions in the recent November 1982 PROUD SPIRIT/MOBEX exercise. These users were able to enter personnel transactions and to make file inquiries on Military Occupational Specialties (MOSs), jobs and other personnel

information in their areas of responsibility. Further use of the "Demonstraion CAMIS" is planned in future exercises. (8:1-2)

While the "Demonstration CAMIS" will be a major assist in maintaining a realistic view of user needs in Reserve Component mobilization, management plans also call for an assessment of Project VIABLE computers. Currently, a decision has not been reached on whether or not to use dedicated CAMIS hardware or to interface with the large VIABLE network. If CAMIS does become part of the VIABLE network, it will result in a major increase in the size of the network. Department of the Army is also looking at the feasibility of placing several other major systems on VIABLE to include the Vertical Force Development Management Information System (VFDMIS).

In summarizing, CAMIS is sorely needed to provide the automated capability required to mobilize the entire U.S. Army. Until this system comes on-line, automation in support of Reserve Component mobilization will remain fragmented and less than effective.

CHAPTER IV

VIABLE IN MOBILIZATION

A. IMPACT OF MOBILIZATION

Mobilization will have an immediate impact on ADP at Army installations. Specifically, there will be rapid and sudden increases in the requirements for processing time, main and peripheral memory to accomodate larger data files and computer programs, and a need to provide for continuity of operations (COOP) for the RDC and its associated DPCs. (4:2-2)

B. ARMY REQUIREMENTS

Army mobilization requirements were a major concern of early VIABLE planners. In 1977 input was solicited from all major commands on this matter. FORSCOM was an especially important contributor. The Request for Proposal (RFP) that was subsequently developed from a rigorous analysis of these inputs included a detailed comprehensive list of the Army's ADP requirements at each installation. A partial site profile of the Data Processing Installation at Fort McClellan is included at Appendix B.

The RFP included the following mobilization requirements:

(1) Support specific inactive/semiactive mobilization stations by means of standalone terminals (non-VIABLE ADP equipment) at selected stations.

(2) Support an increase in batch processing at each DPI.

(3) Support an increase in interactive workload by over 100%, with operations from 0730 to 2330 hours daily.

(4) Provide around-the-clock operations, 7 days a week.

(5) Ensure that the turnaround time for interactive and batch processing will be the same as during peacetime.

(6) Provide increased maintenance and continuity of operations support.

(7) Provide the capability to support all mobilization requirements in six days.

The type workload to be supported during mobilization is not new or different. Concerning the requirement for standalone terminals at inactive/semiactive mobilization stations, the following VIABLE sites will be interfaced via magnetic tape to the mobilization stations indicated:

VIABLE Supporting Site	Mobilization Station
Fort Eustis	Fort Storey
Fort Lee	Camp Pickett Camp Hill
Fort Ben Harrison	Camp Atterbury
Fort Sill	Fort Chaffee
Fort McPherson	Fort Buchanan
Fort McCoy	Camp Ripley
Fort Ord	Fort Irwin Camp Roberts
Fort Polk	Camp Shelby
Fort Sheridan	Camp Grayling
Fort Stewart	Camp Blanding
Fort Lewis	Gowen Field Camp Edwards

The stand-alone terminals will handle all data transmission

between the supporting mobilization stations and the supported mobilization stations. An additional storage capacity of two to three times will be required at all VIABLE BASOPS supporting sites to accomodate the data bases for each mobilization station. (20:99-101)

Each Army installation has been carefully evaluated by the Army and a site profile prepared which includes the increase in workload for each installation in the event of mobilization (see Appendix B). Often the increases in workload due to mobilization increase the processing capacity of an installation by more than 100% with comparable increases in storage and other key functions.

C. VIABLE CAPABILITY TO SUPPORT MOBILIZATION

EDS has designed a robust reserve capacity into the RDC and DPC network so that only a few equipments will have to be added to accomodate mobilization. EDS sizing used the existing capabilities of all RDC and DPC equipment to match the DPC's mobilization needs, taking into account each DPC's increased batch processing and disk space requirements and the need for a 100 percent increase in interactive processing throughout the VIABLE environment. The telecommunications network was designed so that the peak use during peacetime and mobilization accounted for just 35 percent of the design capacity.

When mobilization is declared, EDS will meet the Army requirements within a 24 hour period. All processing at the Regional Data Centers will shift immediately from 16 hours a day,

5 days a week to 24 hours a day, 7 days a week. The interactive processing will occur on the first and second daily operations shifts and most of the batch processing will take place during the third shift. Staffing shortages during the immediate change to 24 hour operations will be met through overtime and extended shifts by the existing RDC staff. The EDS operated RDC is prepared to shift immediately to a mobilization work schedule e.g. around-the-clock operations. EDS personnel will be supplemented by transfers of experienced personnel from other large EDS data centers, and will work longer shifts and overtime until full RDC staffing is achieved. Contractor maintenance personnel will be on site or on call (2 hour notice), 7 days a week. A backup RDC has been designated for all DPC's when an RDC is lost. In the event of the loss of an RDC during mobilization, all DPI's connected to the lost RDC will transfer operations to other RDC's within the VIABLE network. Required critical files will be reproduced and transfered to an off-site location so that processing can continue at an alternate RDC when the primary RDC is lost.

As mentioned previously, it has been estimated that peak peacetime or mobilization data workload will use less than the 85 percent of the available transmission capacity. Therefore, more than a 15 percent residual capacity remains to ensure a capability for continuity of operations exigencies and increased application workload. Lastly, the Army has specified that a full mobilization status be achieved on the VIABLE ADPE resource within six days of notification. Within that timeframe, the VIABLE ADP resource must meet the Army mobilization requirements of computer

processing power, and disk space that have been specified by site. In addition, the telecommunications network must be able to absorb the increased workload. Procedures have been established in EDS's VIABLE Mobilization Support Plan to ensure that the Army will be provided with the increased capability that it needs to include extended interactive and batch processing, more disk space, higher volumes of printed output and greater use of card readers, card punches and tape drives.

Most important in time of mobilization will be the cooperation between government and contractor personnel. It is the government's responsibility to notify EDS when mobilization is declared. Each installation must then communicate its processing priorities and schedule changes to the EDS contractor. Daily work schedules must then be developed by EDS to accomodate rapidly changing priorities and other changes in Army requirements. (4:3-1-3-25) The success of ADP processing in such a mobilization scenario will depend in large measure on good communications and working relations between the government and EDS.

D. CONTINUITY OF OPERATIONS

A complete continuity of operations plan (COOP) has been developed by the contractor and approved by the VPMO. During peacetime problems are anticipated in the system that will require the activation of certain portions of the COOP plan. However, the stresses in the VIABLE network will be much greater in a mobilization scenario. It is important that the COOP be thoroughly exercised during peacetime to improve its operation and

to ensure that it is workable.

The COOP addresses two categories of processing loss- limited loss and facility loss. Limited loss refers to a temporary loss of a resource that is required for successful processing e.g. application data, hardware, executive software, or communications loss. Each of these resources can be replaced or repaired in a relatively short period of time and therefore, the loss should be of limited duration and of limited scope. Facility loss refers to the total loss of processing capability at a data processing site, whether a DPC or RDC. In this instance, the facility (or processing capability) must be replaced or the workload relocated to an alternate site.

Application data loss involves data which has been lost at the RDC's. Normally it can be restored immediately after the loss is detected. The continuity of operations plan includes specific directions for backing up and restoring all files. The usual procedure is periodically to back up to tape all master files, or to remove the previous generation of a master file offsite to a safe storage facility. If data is lost, the back-up tapes will be used to replace the destroyed file

The loss of executive software is most easily handled by a process similar to application data loss, that is, restoring the system from a backup copy. The main difference is that in most all cases, the entire computing facility is inoperable for application processing, until the executive software is restored. In the case of application data loss, only those systems for which the data was used would be affected.

The loss of hardware at a DPC requires that some evaluation

be made of the extent of the loss and that decisions be made concerning the best alternative for repair or circumvention. Repairing a resource is a straightforward procedure, but if a decision is made to circumvent the problem, there are three choices:

(1) Cable around a failing device or reconfigure the software to eliminate it from use. This allows the system to continue operating, although possibly in a degraded mode.

(2) Route all output from the RDC to a nearby DPC and transport the output to its final destination.

(3) Generate all the output at the RDC facility and transport it directly to the required DPC.

The selection of the second or third alternatives would probably be based on distance, current load at the alternate DPC, and scheduling limitations.

The loss of hardware at an RDC is less drastic because hardware is configured for backup at these locations. In general, the loss of a specific storage device is recovered by restoring the data from backup files to an alternate spare device. In the VIABLE RDC configuration, the capability exists to increase the density of a disk unit to obtain additional backup storage. The loss of communications facilities, whether the resource is a modem, a leased line, or a communications controller, is overcome by either reconfiguring to use an alternate component, running in a degraded mode, or by using a dial-up telephone circuit. Both the DPC's and the RDC's have adequate dial-up systems to support the required communications traffic until the leased

lines are operational. (5:25-28)

A final point on workload concerns the systems that will be run on VIABLE during mobilization. The VIABLE network has been sized to accomodate the complete peacetime workload, as well as a sizeable increase due to mobilization and wartime workload requirements. However, it should be noted that that a good portion of the peacetime workload could be decreased to accomodate unexpected increases in wartime requirements. As an example, the SIDPERS system will be replaced by a modular wartime SIDPERS that is more compact and requires less processing time.

E. IMPACT OF NEW SYSTEMS

The VIABLE system has been engineered to accomodate existing Army ADP requirements along with projected growth in batch processing of 11.3% and 18% in interactive traffic. However, concern has been manifested over the impact of new, major systems such as the previously discussed Continental Army Management Information System and other large major command management information systems.

A review of existing VIABLE Project Management Office (VPMO) procedures indicates that the VIABLE resource is under rigorous configuration control. All proposal changes to the system are carefully evaluated by a Configuration Control Board (CCB) after input from the contractor. Putting a large system such as CAMIS on VIABLE will certainly require careful

consideration and time. First, the Army Product Manager of the new system must draft up exact specifications and gain approval and funds from Department of the Army to proceed with placing the system on VIABLE. Once this is accomplished EDS must evaluate the impact of the new system and develop a detailed cost and technical proposal. The VIABLE CCB will then carefully evaluate the complete impact of placing the system on VIABLE. The complete process is estimated to take six months or more after the Product Manager has drafted up his complete specifications.

Expedited procedures have been developed by the VPMO to make changes and to add smaller systems. Such procedures only require a few days to implement changes. It is these procedures that will most likely be used in a mobilization scenario to add critical mini-systems required during mobilization.

A final note concerns the capability of the VIABLE system to be expanded rapidly. By employing a regional concept, EDS has designed a network that has tremendous flexibility in being able to satisfy major sudden increases in processing and storage. As previously mentioned, within six days additional processing capabilities to double capacity will be brought to bear at the RDCs by augmenting the RDCs with additional equipment. In addition, pre-computerized capabilities will be employed such as "acceleration" on the big Amdahl Central Processing Units. The acceleration feature allows the processing power to be increased up to a factor of 66% with the simple throw of a switch. Nor is VIABLE constrained in any practical fashion by technology. The initial Amdahls that will be installed in the RDCs are Amdahl 470V7Bs, admittedly large mainframes, but on the low end of the processing

spectrum. Upgrades are available to swap out these machines for V7A's, V7's and later V8's effectively increasing the processing power through a series of planned steps from 3 MIPS (millions of instructions per second) to 6.8 MIPS. If the Army should ever exhaust this large processing power, it can order up under a new technology clause the new Amdahl 580 machines. These mainframes have processing power in the 15 MIP range. Another large advantage is that these large increases in capacity are at the RDC's where they are transparent to the users at the installations. Prior to VIABLE, the users were constantly faced with having to swap out equipment at the installations to achieve needed capacity. This required time-consuming procurement action which is now unnecessary. The VIABLE contract has upgrades built in to reduce significantly the problem of users constantly running out of processing capability. Taken together- the built-in upgrades, accelerators and upward compatible Amdahl computers, the VIABLE network is indeed an impressive resource.

Another important consideration that impacts the expansion of the entire system is security. EDS is on contract to furnish basic security as well as a higher type of security known as the enhanced version. Concerning basic security, EDS has employed period processing at the RDC's during which time the classified batch workload from the installations will be processed. Since current regulations prohibit concurrent processing, this requires careful coordination with the RDC's to ensure that all classified processing is being done at a particular time in one

of the Amdahl machines. The other will be free to process the unclassified traffic from other installations. The relevant fact is that the security level of new systems must be carefully considered in addition to the size of these systems. Both the basic and enhanced security designs of EDS can accomodate major new secure systems.

CHAPTER V

ADP PROCUREMENT IN MOBILIZATION

A. GENERAL

Department of Defense Acquisition Regulations (DAR) governs Army procurement of all systems to include ADP. Army Regulation (AR) number 18-1, Army Automation Management, establishes Army policy within the constraints of the DAR for the acquisition of ADP. It is oriented toward a peacetime setting and emphasizes a logical procurement life cycle, set milestones and cost savings. To implement an AR 18-1 procurement requires time, patience and strong Department of the Army support to obtain and retain needed funds. Time is especially required to develop an adequate concept, design the system and finally to develop and adequately test the system before deployment. In addition, the decision making process is highly structured with much paperwork and many briefings required as the system moves through the slow bureaucratic process. Lacking in AR-18-1 are provisions to accelerate the process for mobilization or other emergency time periods. There are some provisions within the DAR to shorten the slow procurement cycle, but these are not significant. These provisions are more in the nature of allowing exceptions to the normal slow Formal Advertising procurement strategy. Exceptions in the DAR for mobilization do not appear to exist.

B. NON-FEDERAL COMPUTER ACQUISITION PRACTICES

Private corporations, state governments, and other non-Federal

organizations have been studied to determine what policies are used to shorten acquisition time for ADP. In a recent study it was shown that these organizations implemented policies and practices that result in a considerable reduction in computer acquisition time. When compared to Army acquisition times, it is apparent that there would be distinct advantages to considering these practises in a mobilization scenario. Using these procedures small, peripheral ADP equipment acquisitions take about two months. Large, simple acquisitions such as central processor upgrades take about five months. Large, complex acquisitions, which include major software development take longer, but are still shorter than the traditional Army ADP cycle. As a result, these organizations are able to plan for and obtain current computer technology, while being able to respond more quickly to user demands for new or increased data processing capabilities.

The primary factors that contributed to the shorter acquisition timeframe are: (1) accelerated procurement practises are established by a central procurement office; (2) users are held accountable for the beneficial and cost-effective use of the computer, and they must pay for support through a charge-back system; (3) limited use of full competition and benchmarking (instead of benchmarking, more reliance is placed on published information and the experience of others); and (4) equipment selection by a technical staff with some competition among third-party and plug-to-plug compatible vendors if the incumbent manufacturer is not the preferred solution.

The above was extracted from a 1981 GAO study. While the study study is useful to the Army, current laws and regulations preclude the adoption of the most salient ideas. It will be up to the Congress to recognize the merit of these practises and to amend the existing Armed Forces procurement legislation e.g. Armed Services Procurement Act. (7:1-24)

C. MULTIPLE AWARD SCHEDULE CONTRACTS

The Multiple Award Schedule Contracts (MASC-70) are a set of contracts on the General Services Administration (GSA) schedule awarded each year for commonly ordered ADP items and hardware maintenance. These non-mandatory contracts allow users to order up ADP quickly and non-competitively within certain thresholds. These thresholds are set to accelerate procurement of ADP costing between $50,000 and $500,000. As such, these contracts can be especially useful in adding components to an existing system and in replacing components. In certain cases they would be ideal for augmenting an existing system to meet increased mobilization requirements. However, these thresholds and constraints on maximum orders tend to make them unsatisfactory for obtaining large amounts of ADP quickly. As an example, these contracts have a maximum order limitation of one Central Processing Unit e.g. the maximum order that could be placed by a Federal Agency at any time for a requirement is limited to just one mainframe. In addition, constraints for orders between $300,000 and $500,000 include the securing of a Delegation of Procurement Authority (DPA) from GSA and synopsizing in the Commerce Business Daily. Both

are administrative requirements that probably should be waived in a mobilization scenario.

D. USEFUL CLAUSES IN ADP CONTRACTS

One of the best techniques used to insure flexibility for future ADP acquisitions is to include several useful clauses in the main contract itself. The VIABLE contract is a good example in that a number of very flexible, albeit non-standard, clauses were negotiated into the final production contract. First, an "Option for Increased Quantities" clause was included in the contract that authorized the future increase of ADP resource sites from 47 to 70- an additional 23 sites. The Contracting Officer has the authority to exercise this option at any time in the period of Contract Administration. During this time period all the Contracting Officer must do is to give the contractor notice. The government may require delivery of these optional quantities at any location worldwide.

Another useful clause employed in the VIABLE contract was a mobilization clause. This clause established a series of mobilization requirements and required the contractor to develop a mobilization support plan that would specify in detail the way in which the contractor would satisfy all mobilization requirements. The mobilization requirements were stated as options to the contract and the government reserved the right to exercise any or all of these options at any time during the ten year systems life of the VIABLE contract.

Other useful clauses include options to obtain new tech-

nology and to extend the term of the contract. The former (New Technology Clause) is considered to be an especially important clause as it ensures that the Army will be able to keep the VIABLE network current and equipped with state-of-the-art hardware and executive software. In such a dynamic area as the large computer industry, this clause is absolutely essential if the Army is to keep pace with the rapidly changing technology. Similarly, the success of a future mobilization scenario may well depend on how current the VIABLE system is when the President elects to declare this enhanced state of national readiness.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

This study highlighted the progress made by the U.S. Army in coming to grips with a major, complex issue- the acquisition of adequate, responsive ADP that will support the Army in a mobilization scenario. It is apparent that the days of mobilizing the force with "stubby pencils and paper" are long past. Today the Army is totally dependent on its ADP resources for mobilization.

The ADP problems associated with the last several major mobilization exercises have still not been resolved. However, many of these problems are being addressed by major Army initiatives. A highly successful procurement, the VIABLE system is now transforming the entire ADP landscape of the U.S. Army. It is concluded that VIABLE is both large and flexible enough to fully support the Army's mobilization and wartime BASOPS requirements. Upfront planning in the VIABLE procurement adequately addressed the Army's mobilization requirements. As a result, the VIABLE system was designed and developed to fully satisfy these requirements. VIABLE is also flexible enough both technically and in a procurement sense to satisfy major new requirements such as WTDMIS and CAMIS. The VIABLE network has been designed to accomodate large incremental growth in processing power, storage, and communications capability. Clauses have been negotiated in the contract to facilitate the acquisition of new requirements and changing technology.

The next most important Army initiative is the new CAMIS system. Although the Reserve Components and Active Army will rely primarily on standard Army systems, CAMIS is sorely needed to efficiently integrate the mobilization efforts of the entire Army. By 1985, this major shortfall should be resolved with the fielding of the CAMIS system.

It is concluded that the Army is well on the way to resolving the difficult, major problems that have plagued its mobilization capability during the past several years. Minor problems will persist, but the systematic problems that have inhibited mobilization efforts in the past should be overcome by 1985.

It is recommended that the Department of the Army support changes in legislation and regulations that will allow the accelerated procurement of ADP during mobilization. It is further recommended that the Army continue to fully resource both VIABLE and CAMIS, as well as other systems that will substantially augment the Army's ability to mobilize. In that regard it is important that the Army continue to take a systems approach to the overall problem. Procurement regulations tend to prohibit this approach and subsequent actions result in a fragmentation of the Army's efforts and resources. Today there exists too many separate "stovepipe" systems that are not compatible, e.g. IGMIRS has been approved for a separate buy and VFDMIS may go the same way. By utilizing a systems approach vice acquiring a patchwork quilt (which regulations tend to support), the Army will benefit greatly. In addition, such important components such as communications will not

be overlooked and the Army will obtain a most powerful mobilization capability.

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MOBILIZATION STUDIES PROGRAM

INITIAL RESEARCH DESIGN (IRD)

1. TITLE: Acquisition of ADP within the Army during Mobilization

2. REQUESTING AGENCY: N/A

3. SCOPE

A serious constraint that could have a major impact on the Army's capability to mobilize is the lack of fixed ADP resources. Specifically, the Army needs to be able to run its Standard Army Multicommand Management Systems (STAMMIS) and other major command and Installation Systems during mobilization in order to be able to accomplish its mission and to continue to function properly. The STAMMIS and other MIS applications software is currently run on Army installation Base operating System hardware (BASOPS), which is being upgraded by new Vertical Installation Automation Baseline (VIABLE) hardware and executive software. VIABLE is scheduled to be fully on-line by 1985. Assuming that this schedule is met, it is unclear to all as to whether or not this new resource will be able to handle all the Army's wartime BASOPS requirements. Of primary import, this study purports to determine: (1) the exact capability of VIABLE to support the Army's wartime requirements; and (2) given an ADP shortfall, what is the best method to acquire that shortfall during a mobilization scenario. The study will draw on the lessons learned from the VIABLE acquisition and on private sector procurement techniques used to expedite the purchase and delivery of major ADP systems. Emphasis will also be placed on the VIABLE experience in Contract Administration.

4. IMPORTANCE OF THE SUBJECT

The U.S. Army has just committed itself to the largest computer buy in history. VIABLE is a $600 million ADP buy of a complete ADP system that is designed to totally revamp the Army's ADP fixed facilities. Existing facilities use old 1960 hardware (IBM 360 mainframes) and a mix of newer IBM 4300 series equipment. ADP production and software development is being carried out in virtually a total batch mode using antiquated techniques. VIABLE is designed to relieve the acute saturation problem that now exists, modernize the physical plant, reduce maintenance and software costs, and to assist in a mobilization scenario. It is this latter subject that will be the focus of this paper. ADP support is now absolutely critical to a successful, rapid mobilization by the Army. It is recognized that the Army will no longer have the luxury of many months to mobilize using the manual systems of the past. When mobilization is declared, large increases in processing capability and storage requirements at many of the Army's Data Processing Installations will occur almost instantly. Army ADP resources that will be fully capable of absorbing this sudden increase in mobilization workload must also be quickly made available or else Army mobilization will grind to a rapid halt. A failure of Army mobilization in a crisis is unacceptable to this nation's national security.

5. MAJOR PROBLEMS

a. When fully fielded, will VIABLE be able to adequately handle the full mobilization ADP workload of the Army?

b. Assuming some shortfalls, how will the Army acquire surge ADP support?

c. In the interim before VIABLE is fully fielded (1982-1985),

how will the Army satisfy its mobilization requirements?

6. KEY SUBPROBLEMS

a. Is VIABLE the only answer to the Army's ADP problem in a mobilization scenario?

b. Is VIABLE Contract Administration adequately addressing the problem of Army mobilization?

c. Can the VIABLE contract be used to acquire additional surge ADP support?

d. Have all mobilization requirements been provided to the VIABLE Project Management Office?

e. How will the proposed Continental Army Management Information System (CAMIS) impact VIABLE with regard to mobilization?

7. TENTATIVE HYPOTHESIS

The capability of the U.S. Army to successfully mobilize is directly related to the level of ADP support that can be prepositioned or quickly activated in a crisis scenario.

8. SOURCES OF INFORMATION

a. VIABLE Project Management Office: various sources.

b. Standard VIABLE briefing.

c. Department of the Army, Deputy Chief of Staff for Operations (DCSOPS-C4): various sources.

d. Army, FORSCOM

e. VIABLE Request for Proposal (RFP)

f. BDM Study "US Army Reserve Management Plan (USARAMP) Study"

g. Continental Army Management Information System (CAMIS) Briefing

h. Prime Contractor (Electronic Data Systems)

i. DTIC Technical Reports (various)

9. POSSIBLE ANALYTICAL APPROACHES

Analytical Survey- to be determined.

10. ORGANIZATION

The major steps of this research project include:

(1) Prepare strawman IRD

(2) Research and gathering of facts

(3) Writing of initial draft

(4) In process review

(5) Prepare final draft

PROFILE NO. A-36 DPI FT McCLELLAN, AL
SITE PROFILE

DPI CODE R109

1. SECURITY CONSIDERATIONS:

a. Sensitivity level: CS4.
b. Highest classification processed: Confidential.
c. Clearance required for:
(1) Operations personnel: Confidential.
(2) Installation personnel: Secret.
(3) Maintenance personnel: Secret.

2. DATA COMMUNICATIONS: Telecommunications support includes an off-line AUTODIN I terminal as follows:

a. Terminal type: DCT 9000
b. Baud rate: 1200.
c. Media: Card and mag tape.
d. Direct electrical interface: No.
e. Planned replacement: None.

3. FILE STORAGE MEDIA:

a. Disk Packs:

TYPE	PERMANENT	TEMPORARY	TOTAL
2314	32	19	51

b. Magnetic tapes (total library): 5630

4. MOBILIZATION WORKLOAD INCREASE: Monthly batch workload is expected to increase by 90 percent in the event of mobilization.

INCLOSURES

NUMBER	SUBJECT	PAGES FROM	PAGES TO
A-36.1	ADPE PROFILE	A-36.1-1	A-36.1-2
A-36.2	FACILITIES PROFILE	A-36.2-1	A-36.2-2
A-36.3	CURRENT WORKLOAD	A-36.3-1	A-36.3-2
A-36.3.1	WORKLOAD GROWTH	A-36.3.1-1	A-36.3.1-4
A-36.3.2	NON-BASOPS WORKLOAD	A-36.3.2-1	A-36.3.2-4
A-36.4	COMMUNICATIONS	Not Used	
A-36.5	STAFFING PROFILE	A-36.5-1	A-36.5-2
A-36.6	INTERACTIVITY	A-36.6-1	A-36.6-12

INCL No. A-36.3.1 FT McCLELLAN, GA
WORKLOAD GROWTH
DPI CODE R109 ASSUMES VIABLE EXTENSION IN 1983

	BATCH PARTITION HOURS*		ON-LINE		
	CURRENT	AFTER MOBILIZATION (Includes Current)	INPUTS	QUERIES	TERMINAL UNITS
79	1254	2382			
80	1396	2651			
81	1553	2951			
82	1729	3284			
83	1924	3655	21289	12791	167
84	2142	4068	25121	15093	171
85	2384	4528	29643	17810	177
86	2653	5040	34979	21016	183
87	2953	5609	41275	24799	190
88	3287	6243	48704	29263	198
89	3658	6949	57471	34530	208
90	4071	7734	67816	40745	220
91	4531	8608	80022	48079	234
92	5044	9580	94426	56734	251

* IBM 360-50 Dual Peripheral partition hours.

MCF = 2.9.

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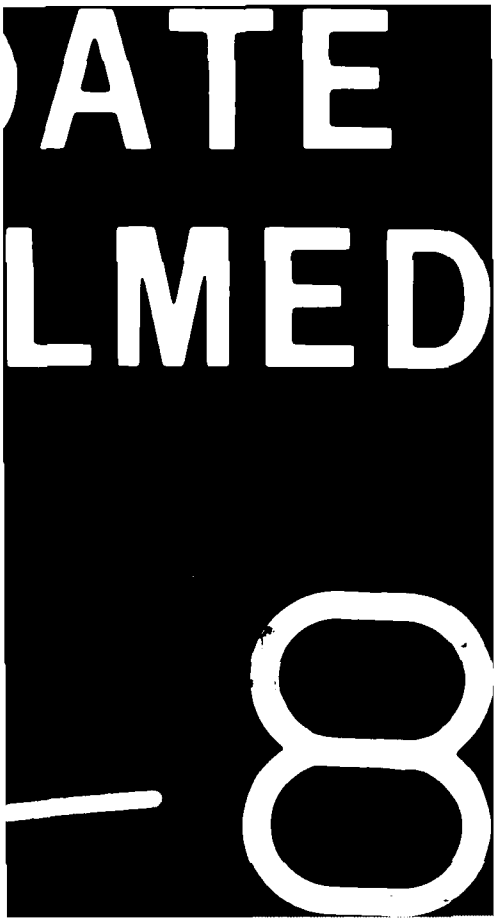
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